

Appln No. 10/066,982
Amdt date December 19, 2005
Reply to Office action of September 19, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1.-33. (Cancelled)

Claim 34. (Currently Amended) A return-to-zero (RZ) recovery system comprising:
first recovery unit configured to receive a data signal and identify[[ing]] a first type of data transition and determine[[ing]] a first phase information when the first type of data transition is identified;

second recovery unit configured to receive the data signal and identify[[ing]] a second type of data transition and determine[[ing]] second phase information when the second type of data transition is identified; and

wherein the first recovery unit generates a first recovered clock signal based on the determined first phase information and the second recovery unit generates a second recovered clock signal based on the determined second phase information.

Claim 35. (Currently Amended) The system of claim 34 further comprising a interpolator configured to generate[[ing]] a third recovered clock signal based on the first recovered clock signal and the second recovered clock signal.

Claim 36. (Original) The system of claim 35 wherein the third recovered clock signal is an additive result of the first and the second recovered clock signals.

Claim 37. (Original) The system of claim 35 wherein the third recovered clock signal is an interpolation of the first and second recovered clock signal.

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Claim 38. (Currently Amended) The system of claim 35 wherein the data signal is a RZ data signal and the system further comprises a sampling unit and a filter, the filter configured to convert the RZ data signal into a non-return-to-zero (NRZ) data signal and provide the NRZ data signal to the sampling unit.

Claim 39. (Original) The system of claim 38 wherein the sampling unit samples the data signal using the third recovered clock signal from the interpolator.

Claim 40. (Currently Amended) The system of claim 34 wherein the data signal is a RZ data signal and the system further comprises a sampling unit and a filter, the filter configured to convert the RZ data signal into a non-return-to-zero (NRZ) data signal and provide the NRZ data signal to the first recovery unit.

Claim 41. (Original) The system of claim 40 wherein the second recovery unit is disabled.

Claims 42.-46. (Cancelled)

Claim 47. (Currently Amended) A return-to-zero (RZ) recovery system comprising:
first recovery unit configured to receive a data signal and identify a first type of data transition and determine a first phase information when the first type of data transition is identified;

second recovery unit configured to receive the data signal and identify a second type of data transition and determine second phase information when the second type of data transition is identified; and

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wherein the data signal is a RZ data signal and the system further comprises a filter configured to convert the RZ data signal into a non-return-to-zero (NRZ) data signal and ~~the filter provide~~ the NRZ data signal to one of the first and second recovery units.

Claim 48. (Cancelled)

Claim 49. (Currently Amended) A return-to-zero (RZ) recovery system comprising:

first recovery unit configured to receive a data signal and identify a first type of data transition and determine a first phase information when the first type of data transition is identified;

second recovery unit configured to receive the data signal and identify a second type of data transition and determine second phase information when the second type of data transition is identified;

wherein the first recovery unit comprises a first phase detector configured to determine phase difference between a first recovered clock signal and the data signal; and

wherein the phase detector generates a phase difference signal based on the determined phase difference.

Claim 50. (Original) The system of claim 49 wherein the phase difference signal is proportional to determined phase difference.

Claim 51. (Currently Amended) The system of claim 49 wherein the first recovery unit further comprises first loop filter configured to receive the phase difference signal from the first phase detector.

Claim 52. (Original) The system of claim 49 wherein the first recovery unit further comprises a oscillator and wherein the first loop filter filters the phase difference signal and provides the filtered phase difference signal to the oscillator.

Claim 53. (Original) The system of claim 52 wherein the oscillator generates the first recovered clock signal based on the filtered phase difference signal.

Claim 54. (Original) The system of claim 53 wherein the oscillator adjusts the frequency of the first recovered clock signal based on the filtered phase difference signal.

Claim 55. (Cancelled)

Claim 56. (Currently Amended) The system of claim 49 wherein the second recovery unit comprises a second phase detector configured to determine phase difference between a second recovered clock signal and the data signal; and

wherein the phase detector generates a phase difference signal based on the determined phase difference.

Claim 57. (Currently Amended) The system of claim 56 wherein the second recovery unit further comprises second loop filter configured to receive the phase difference signal from the second phase detector.

Claim 58. (Original) The system of claim 57 wherein the first recovery unit further comprises an oscillator and wherein the second loop filter filters the phase difference signal and provides the filtered phase difference signal to the oscillator.

Claim 59. (Original) The system of claim 58 wherein the oscillator generates the second recovered clock signal based on the filtered phase difference signal.

Claim 60. (Original) The system of claim 58 wherein the oscillator adjusts the frequency of the second recovered clock signal based on the filtered phase difference signal.

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Claim 61. (Currently Amended) The system of claim 35 further comprises a sampling unit configured to sample the data signal using the third recovered clock signal from the interpolator.